

Preliminary Amendment  
U.S. Appln. No. 09/534,196

**REMARKS**

Entry and consideration of this Amendment are respectfully requested.

Respectfully submitted,



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**APPENDIX**

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE CLAIMS:**

**The claims are amended as follows:**

2. (Four times amended) A rocket engine [nozzle] as ~~claimed~~<sup>circled</sup> in claim 14, wherein the separation triggering elements comprise:

injection orifices positioned for injecting fluid through a wall of the nozzle body; and  
at least two independent injection orifices being distributed over the perimeter of the wall of the nozzle body, each of the injection orifices constituting a discrete separation triggering element that induces a distinct zone of jet separation.

3. (Three Times Amended) A rocket engine [nozzle] as claimed in claim 2, wherein the injection orifices are uniformly distributed over the perimeter of the wall of the nozzle body.

4. (Four times amended) A rocket engine [nozzle] as claimed in claim 14, wherein the injection orifices comprise at least two, which are symmetrically positioned around the circumference of said divergent nozzle body.

5. (Three Times Amended) A rocket engine [nozzle] as claimed in claim 3, wherein the injection orifices comprise <sup>three</sup>3 in number and are arranged at substantially 120° to one another over the perimeter of the nozzle body.

6. (Three Times Amended) A rocket engine [nozzle] as claimed in claim 2, wherein said injection cross section is arranged at distance D from the throat which is substantially less than a distance D<sub>0</sub> of a location of spontaneous separation of the flow at sea level.

7. (Four times amended) A rocket engine [nozzle] as claimed in claim 6, said means for simultaneously injecting comprising:

a plurality of injectors situated at different distances from the throat for simultaneously injecting said fluid; and

a distributing device for selectively feeding said injectors at different cross sectional locations to take into account the variation of said distance of spontaneous separation of the flow as a function of altitude.

14. (Twice amended) A rocket engine [nozzle] comprising:

a combustion chamber;

a throat; and

a divergent nozzle body downstream of said throat, said nozzle body having an axis and a control system for controlling jet separation of a flow in the nozzle body, said [flow] <sup>throat</sup> ~~thrust~~ being parallel [to] with the axis of the nozzle body,

wherein said control system comprises,

[at least two] a plurality of mutually spaced separation triggering elements positioned on [at least one] an injection cross section of the divergent nozzle body [that is] perpendicular to the [nozzle] axis of the nozzle body, and

DR a means for simultaneously injecting fluid through the [at least two] mutually spaced separation triggering elements of said [at least one] injection cross section of the divergent nozzle body, forming a three-dimensional separation of said flow, [wherein said spacing of the separation triggering elements is sufficient for said injection through

DR the at least two separation triggering elements to generate as many and for generating  
distinct zones of jet separation as there are corresponding to the spaced separation  
triggering elements from a respective plurality of mutually spaced initiation points  
positioned in the divergent nozzle body, [to form a three-dimensional separation of the  
flow] wherein said separation triggering elements are spaced so that said injection occurs  
through the separation triggering elements.

15. (Once amended) The rocket engine [nozzle] as claimed in claim 14, wherein the  
nozzle body is conical.

hS  
new  
matter  
**Claims 16-18 are added as new claims.**